

Water Efficiency and Energy Opportunities

Commercial & Institutional

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Energy 2002 Exposition

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Where It Flows

- Landscape
- Cooling Towers
- Toilets
- Urinals
- Wash Basins
- Kitchens
- Laundry

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Share Your Goals

There's No "I" In Water Conservashun

- Most water conserving technology ~~can~~ will be misused by employees
- Beware of Tools of Convenience
 - Irrigation Controllers
 - Auto-flush controls
- Most water waste is known by some, but goes unreported
- Avoid information overload

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Survey the Facility

And You Audit Do It Annually

- Internal audits often suffer from Familiarity Syndrome
- Independent audits are usually more effective - try a Facility Manager swap
- We have ***always*** found significant cost effective savings in 20 years of energy and water audits (despite self selection bias)

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Landscape

Rules of Green Thumb

- 90% of controllers over water
- Non-turf requires 1/2 water of turf
- Turf H₂O needs approximately (5-precip.) ft³ / ft² / year
- “Football Season Starts Half Time”
©
- *Take control of the controller*

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Toilets

Come Out of the Water Closet

- Replace with ULFTs
- Repair with proper parts
- Educate employees
- Move towel dispensers away from stalls
- Do not use in-tank cleaners
- Weekly leak checks (esp. hotels)

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Urinals

Taking Aim

- Replace valves with 1 GPF
- Weekly leak checks
- Repair valves with proper parts
- Replace with waterless urinals
 - Educate employees
 - Educate maintenance staff

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Wash Basins

No Fairer Faucet

- 1 GPM aerators for hand washing
- Auto turn-off valves
- Hot water may not be necessary
- Operational drain stops
(especially hotels)
- Weekly leak checks

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Boiler/Steam Systems

A Topic For Condensation

- Schedule routine inspections
- Water treatment reduces blowdown
- Reduce scale buildup to improve heat transfer
- Install and maintain condensate return
- Do not guess at blowdown rates
 - too few causes scale = energy waste
 - too many = water waste
 - input water quality is variable

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Cooling Equipment

Single Pass Intercepted

- Inventory: ice machines, A/Cs, CAT scanners, degreasers, hydraulics, condensers, air compressors, welders, pumps, etc.
- Investigate multi-pass system options
- Set input rates at lowest possible
 - input water temp may be variable
- Maintain and clean equipment
- Investigate water reuse options

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Evaporative Cooling

All Along the Cooling Tower

- Water management requires:
 - dedicated water meter
 - TDS meter (conductivity meter)
- Input water needs depend on:
 - Allowable TDS threshold of system
 - Evaporation
 - Input water TDS level
- Overflow leaks
- Use your *power over the tower*

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Food Service

Fresh Catch of the Day:

Poached Habits
with Watercrisis Salad

- Wasteful practices common
- Glass of water on request only
- New dishwasher technology
- Efficient spray nozzles
- Fill basins *may* not need aerators

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Laundry

What To Wash Out For When Linen Dancing

- Hotels should include "WAVE" practices
 - change linens only upon request
 - launder towels only upon request
- H-axis washing machines save 30%
- Cold water wash
- Recycle rinse water

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